



Application

Hydrocracking is an important unit operation at many refineries. Achieving unit productivity, reliability and campaign length targets is critical to meeting customer demand and achieving bottom line performance.

Problem

A North American refinery was seeing rapid differential pressure rise on their hydrocracker catalyst bed due to particulate ingress. The differential pressure trend indicated that catalyst bed replacement would be required two years earlier than planned, taking their 32,000 bbl/day hydrocracker unit out of service for 7-10 days for catalyst replacement.

Solution

A 19 element horizontal High Flow rental filter was installed in a matter of weeks handling the full flow to the hydrocracker.

The skid was viewed as a 'no compromise' solution, as it was designed to meet sour service and general refinery specifications, making for an easy approval and installation

Results

Immediately following filter start-up, bed differential pressure rise was eliminated, allowing the hydrocracker to achieve the targeted campaign length, eliminating the costs of unscheduled outage for catalyst replacement, and maximizing hydrocracker output.

Rental Filter Maintains Hydrocracker Campaign Length by Eliminating Bed Differential Pressure Rise



A 19-around horizontal High Flow housing installed on the hydrocracker feed for catalyst bed protection

By maintaining production, the unit was able to continue generating \$1 million/day in revenue for the refinery, ensuring \$7 to 10 million revenue at risk from the unscheduled shutdown was actually achieved.

Savings from the eliminated unscheduled outage include catalyst replacement and change out and disposal costs which can be substantial.

Filter life has averaged one month. The refinery views the annual element cost of \$250k, as a good investment to ensure full campaign productivity and elimination of fouling-related downtime.

Six weeks after installation, the site decided to purchase the rental unit for permanent installation.

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